

VIII.—*Phyllothelys*, a remarkable Genus of Mantodea from the Oriental Region.—By J. WOOD-MASON, Deputy Superintendent, Indian Museum, Calcutta.

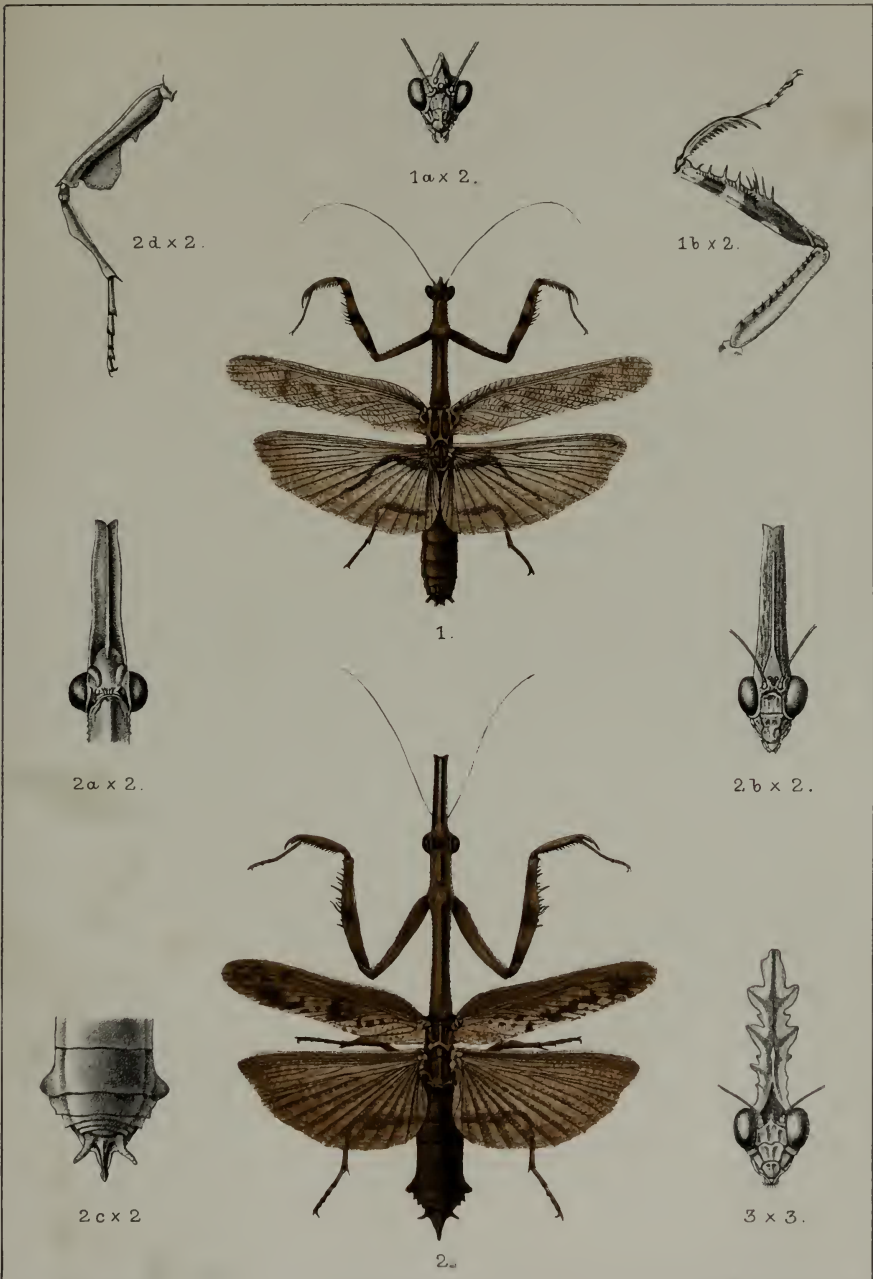
(With Plate XII.)

Genus PHYLLOTHELYS, W.-M.

P. A. S. B. 1876, p. 176.—A. & M. N. H. 1876, 4th ser. vol. xviii, p. 507.—P. E. Soc. 1877, p. xviii.

♂. ♀. Vertex directed forwards and slightly upwards, strongly protuberant between the juxtocular lobes; the protuberance flat and triangular in front, behind convex and trefoil-shaped, being divided into three lobes, one large and median and two small, equal, and lateral; the former produced at the apex into a long, narrow, and very gradually tapering horn, which is expanded, together with the lobes themselves, in the middle line posteriorly and at the sides, into sharp foliaceous crests, and which may be rudimentary in the male; facial shield pentagonal, about as long as broad, marked with two blunt longitudinal ridges, and with its basal angle slightly projecting. Eyes oval, tolerably prominent, not narrowed as in *Phyllocrania*. Pronotum long and slender, nearly five times as long as its parallel-sided anterior lobe, very gradually widening from its narrowest part just behind the dilatation, and equally gradually increasing in height, to its base, close to which it bears a prominent smooth tubercle, and where it is nearly as wide as at the distinct dilatation; prosternum slightly and decreasingly roof-shaped from the insertion of the forelegs backwards. Anterior coxæ, long and slender, when laid back not reaching to the base of prothorax, their apical lobes not divergent, but close together; tibiæ half the length of the femora, with only the basal 5 or 6 of the spines of the outer edge curved towards the margin; femora with 3 spines on the outer edge and 4 on the disc; four posterior legs short; femora with genicular spines and with foliaceous lobes on the lower crest; tibiæ with their apical half inflated latero-superiorly. Axillary and anal veins of tegmina running one immediately after the other into the internal ulnar vein, first ulnar vein branched; ulnar vein of wings 2-branched. Abdomen depressed, widening more (♀) or less (♂) from base to end of 5th somite, the remaining somites forming a triangular figure with more or less serrated sides; the dorsal arc of its 10th somite roof-shaped, broader than long, subtriangular.

This interesting and curious form may be provisionally placed between the African genus *Phyllocrania* and the Oriental genus *Anaxarcha*.



B.L.D et J.W-M. del.

Mintern Bros imp

Parker & Coward lith

1-2. *Phyllothelys westwoodi*, ♂ ♀.
 3. *Phyllothelys paradoxum*, ♂ nymph.

1. *PHYLLOTHELYS WESTWOODI*, W.-M., Pl. XII, Figs. 1—2.

loc. supra cit.

♂.♀. Rich dark or light umber-brown of the colour of bark and dead and rotten leaves.

♀. Vertex greatly protuberant; the protuberance divided into three lobes, two small and hemispherical, lateral and basal, and one large, the median lobe of the vertex, flat, smooth, and triangular in front, but convex in every direction behind, and rounded at the apex, from which it suddenly gives off a long, slender, and very gradually tapering almost linear horn; the protuberance is marked off in front from the rest of the head by a transverse groove which corresponds to an imaginary straight line drawn tangentially to the upper surface of the eyes, and the sides of its median lobe and of the horn into which this is prolonged are expanded into foliaceous crests, which are turned up or rather back at their outer edges and, being longitudinally wrinkled on their anterior surface, are hence sharply marked off from the perfectly smooth primitive horn; this is raised, in the middle line of its posterior face, into a thin, sharp, and prominent crest, which is continued a short distance on to the protuberance itself, and, owing to the forward curvature of the horn, as well as to its own decrease in height from the base upwards, hence has its free edge distinctly arched. In the male, the horn and its parts are reduced to a quite rudimentary condition and are folded up into a soft, flexible, and slightly asymmetrical conical process only about 1 millim. in length. Facial shield pentagonal, fully as long as broad, with two distant and incomplete longitudinal ridges on its disc and a blunt spiniform tubercle projecting from its basal angle. Eyes rather prominent; not nearly so narrow as in *Phyllocrania*.

Prothorax greatly elongated and slender, devoid of all traces of foliaceous expansions; prosternum roof-shaped decreasingly from the setting-on of the forelegs backwards and thickly speckled with darker; pronotum narrowing behind the dilatation and then widening again, concomitantly increasing in height, to the base, where it is as broad as at the dilatation, and where it bears in the middle line an elongate and slightly bilobed smooth tubercle; with its lateral margins finely denticulate and with a well-developed supracoxal dilatation; its anterior lobe parallel-sided, with a median dorsal ridge lodged in a shallow depression; its posterior lobe provided with a raised median longitudinal ridge decreasing from the base forwards and becoming stronger again at the dilatation, where, like the ridge on the anterior lobe with which it is in unbroken continuity, it is lodged in a shallow depression.

The forelegs are long and slender. The coxæ are triquetrous and when laid back do not reach to the base of the prothorax; their inner face is coloured red-violet surmounted on the upper crest by yellowish marked with 10—13 minute elongate black spots lying at the bases of as many minute black spinules, between which are some very much more minute yellowish ones. The femora are very slightly sinuous above, but arched below; their outer face bears one distinct oblique bar and a minute mottling of a darker shade of brown than the ground-colour; their inner face is black, with the apex, a complete transverse bar nearer to the ungual groove than to the apex, and an oblong mark nearly midway between the ungual groove and the base on the upper half, all yellow; tibiæ jet-black internally and below, armed on the inner edge with 14—15 and on the outer edge with 16 teeth, the basal five only of which are more recumbent than the rest and even they do not nearly touch the margin, or even one another; the intermediate and posterior legs are short; they are ridged as in *Phyllocrania*; the posterior of their lower crests bears a foliaceous lobe divided by an emargination into a very small proximal and a much larger distal portion with a rounded and nearly entire margin; the tibiæ have no foliaceous crests, but, in lieu thereof, the proximal half swollen and thickened club-like laterodorsally, as in one or both of the same pairs of legs in the species of the tropical American genus *Acanthops* and its allies.

Organs of flight extending very little beyond the extremity of the abdomen, coloured. Tegmina coriaceous, opaque umber-brown anteriorly, posteriorly membranous and hyaline covered irregularly with brown-smoky spots, which tend in places to coalesce so as to form a coarse mottling; anal gusset reticulate, with the membranous meshes smoky and the net-work obsoletely lined with hyaline; the stigma elongate, polished. Wings with the anterior margin semiopaque umber-brown, the apex of the anterior area distinctly brown-spotted like the corresponding part of the tegmina; all the rest of the organs brown smoky-quartz-coloured, gradually increasing in intensity from the base to the outer margin, and tolerably distinctly lined with hyaline on both sides of the transverse veinlets.

Abdomen broad and depressed, gradually widening from its base to the end of the 4th somite, whence it widens with greater rapidity to the end of the 5th, the posterior angles of which are produced outwards; the rest of the abdomen forming a triangular mass the sides of which are slightly jagged owing to the production of the posterior angles of the dorsal arcs of the 6th and 7th somites; the terminal dorsal arc is crescent-shaped, longitudinally roof-shaped, and more than twice as broad as long.

The cerci are of the ordinary slender conical form and do not reach so far as the end of the ovipositor.

♂. Smaller and slenderer with the cephalic horn and its crests, as has been already stated, reduced to a rudimentary condition and all folded or shrivelled up together so as to form a soft and flexible projection no more than about a millimetre in length.

Organs of flight almost wholly membranous and hyaline. Tegmina with the marginal field semiopaque brown resolved into spots at the apex, with a few scattered groups of areolets in the discoidal area and the meshes of the anal gusset faintly smoky, and with some dark brown linear dashes on the longitudinal veins. Wings with their anterior margin pale brown spotted at the apex, the rest of these organs being very faintly iridescent-smoky, with obsolete double hyaline edgings to the transverse violets, from the base nearly to the outer margin, along which the smokiness and the longitudinal veins are alike darker, especially in the anterior area.

In the Tenasserim specimen of this sex the cephalic protuberance is more broadly rounded at the top and less produced, and the horn is more rudimentary (? in consequence of the specimen being a dried one), but there is no other apparent difference between it and the spirit-specimen from Assam described above, except perhaps in the tint (exaggerated in fig. 1) of the wings, which is slightly deeper in the latter.

Total length, ♀ 51, ♂ 40; height of head, from free margin of labrum to apex of horn, ♀ 14, ♂ 4.5, breadth of head between the eyes, ♀ 4.5, ♂ 3.75, length of horn, from a straight line drawn tangentially to the upper surface of the eyes, ♀ 10, ♂ 1.5; length of antennæ, ♀ 22, ♂ 22; length of pronotum, ♀ 22, ♂ 14.5, of its anterior lobe, ♀ 5, ♂ 3.3, of its posterior lobe, ♀ 17, ♂ 11.2, breadth of pronotum at supra-coxal dilatation, ♀ 3.5, ♂ 2.75; length of fore-coxa ♀ 13, ♂ 9, femur, ♀ 14.5, ♂ 10, tibia, ♀ 8, ♂ 5.5, intermediate femur, ♀ 5.5, ♂ 4.5, tibia, ♀ 5, ♂ 4, posterior femur ♀ 7.5, ♂ 6, tibia ♀ 7, ♂ 5.5; length of tegmina ♀ 27, ♂ 27, breadth across middle ♀ 6.5, ♂ 6 millims.

HAB.—2 ♀ and 1 ♀ nymph, Sibságar, Assam (*S. E. Peal*), 1 ♂, Buxa, Bhutan (*Dr. Lewis Cameron*), and 1 ♂ Moolai, Upper Tenasserim (*Moti Ram*) in Indian Museum, Calcutta. A fine female is preserved in the British (Natural History) Museum, South Kensington, London.

2. PHYLLOTHELYS PARADOXUM, n. sp., Pl. XII, Fig. 3.

♂ nymph. Nearly allied to the preceding, which it closely resembles in the relative proportions of its parts and in every detail of colour and ornamentation, but from the same sex of which it differs in the possession of a fully developed cephalic horn and from the opposite sex

in the form of this horn, which is slenderer, much more thinly foliaceous, and jagged, instead of entire, on the edges, so as to resemble a very narrow pinnately-cleft leaf, the mid and lateral ribs of which are represented by the thick and hence opaque axes of the horn and its lateral processes. The fore tibiæ have 16 teeth on the outer edge and 14 on the inner.

The only measurements of this immature insect that can usefully be given are :—length of pronotum 11, of fore femur 7, height of head, from free edge of labrum to top of horn, 7 millims.

HAB. Burmah.

This interesting animal was presented to me many years ago by my friend Mr. William Theobald of the Geological Survey of India.

EXPLANATION OF PLATE XII.

Fig. 1. *Phyllothelys westwoodi*, W.-M., ♂, with wings extended, nat. size ; 1 a. the head, viewed from in front, $\times 2$; 1 b. the left fore-leg, from the inside, $\times 2$.

Fig. 2. *Phyllothelys westwoodi*, ♀, with wings extended, nat. size ; 2 a. the head, from behind, $\times 2$; 2 b. the same, from in front, $\times 2$; 2 c. the end of the abdomen, from above, $\times 2$; 2 d. the posterior leg of right side, from in front, $\times 2$.

Fig. 3. *Phyllothelys paradoxum*, n. sp., ♂ nymph, the head, from in front, $\times 3$.



IX.—*Notes on Indian Rhynchota*, No. 1.—By E. T. ATKINSON, B. A.

Unless where expressly stated to be descriptions, the notes attached to each species are merely intended as aids to identification ; and the measurements of specimens not in the Indian Museum have been converted into millimetres from the measurements of the several authors.

HOMOPTERA.

Family CICADIDÆ, Westwood, *Introd. Mod. Class. Ins.* ii, 420 (1840).

Stridulantia, Stål, *Hem. Afric.* iv, p. 1 (1866).

Ocelli three, placed on the disc of the vertex. Pronotum and mesonotum very large. Anterior coxæ prismatic, oblong, inserted in the anterior angles of the prostethium : intermediate and posterior coxæ briefly subconical, somewhat contiguous, remote from the sides of the body. Anterior femora incrassated, very often spinose, tibiæ smooth. Tarsi 2—3 jointed. Abdomen in the males with an organ of sound on each side at the base.